

Listing Of Claims:

1. (Cancelled)

2. (Previously Presented) A laminate comprising:

an ionomer layer and

a tie-layer comprising a (co)extrudable tie resin (CTR), wherein the CTR comprises a copolymer of one or more C₂-C₁₀ α -olefins and one or more ethylenically copolymerizable amine-containing monomers, the copolymer having amine groups that may be represented by the general formula:



where each R is independently H or a C₁ to C₁₀ hydrocarbon and R' is a bond or a C₁ to C₁₀ hydrocarbon.

3. (Original) The laminate of claim 2, wherein R is H and R' is a bond.

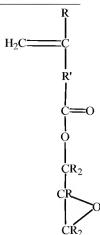
4. (Original) The laminate of claim 2, wherein the C₂-C₁₀ α -olefins are ethylene and/or propylene.

5. (Previously Presented) A laminate comprising:

an ionomer layer and

a tie-layer comprising a (co)extrudable tie resin (CTR), wherein the CTR comprises an epoxy-containing polymer comprising a copolymer of C₂-C₁₀ α -olefins and epoxy-containing monomers.

6. (Original) The laminate of claim 5, wherein the epoxy-containing monomer is represented by the general formula:

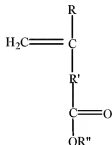


where each R is independently H or a C₁ to C₁₀ hydrocarbon and R' is independently a bond or a C₁ to C₁₀ hydrocarbon.

7. (Original) The laminate of claim 5, wherein the C₂-C₁₀ α-olefins are ethylene and/or propylene.

8. (Original) The laminate of claim 5, wherein the epoxy-containing monomers are selected from the group consisting of glycidyl acrylate and glycidyl methacrylate.

9. (Original) The laminate of claim 5, wherein the copolymer further comprises an ester monomer represented by the general formula:



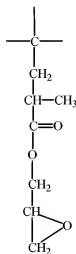
where each R is independently H or a C₁ to C₁₀ hydrocarbon; each R' is independently a bond or a C₁ to C₁₀ hydrocarbon; and R'' is a C₁ to C₁₀ hydrocarbon.

10. (Original) The laminate of claim 9, wherein the ester monomer is selected from the group consisting of methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate, and butyl (meth)acrylate.

11. (Previously Presented) A laminate comprising:

an ionomer layer and

a tie-layer comprising a (co)extrudable tie resin (CTR), wherein the CTR comprises a grafted, epoxy-containing polymer represented by the general formula:



12. (Previously Presented) A laminate comprising:

an ionomer layer and

a tie-layer comprising a (co)extrudable tie resin (CTR), wherein the CTR comprises a grafted, epoxy-containing polymer produced by grafting epoxy-containing monomers onto C₂-C₁₀ α-olefins polymers.

13. (Original) The laminate of claim 12, wherein the C₂-C₁₀ α-olefins polymers are ethylene and/or propylene polymers.

14. (Previously presented) A laminate comprising:

an ionomer layer and

a tie-layer comprising a (co)extrudable tie resin (CTR), wherein the CTR comprises an epoxy-containing polymer, the epoxy-containing polymer comprising glycidyl methacrylate grafted onto polyethylene or a copolymer of ethylene with one or more ester monomers selected from the group consisting of methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate and butyl (meth)acrylate.

Claims 15-39. (Cancelled)

40. (Previously Presented) The laminate of claim 2, wherein the ionomer layer comprises a first ionomer layer and a second ionomer layer.

41. (Previously Presented) The laminate of claim 40, wherein the first ionomer layer or the second ionomer layer is pigmented, natural, or clear.

42. (Previously Presented) The laminate of claim 2, further comprising a backing layer.

43. (Cancelled)

44. (Previously Presented) A composite comprising:

an ionomer layer;

a tie-layer comprising a (co) extrudable tie resin (CTR); and

a substrate, wherein the CTR comprises a copolymer of one or more C₂-C₁₀ α -olefins and one or more ethylenically copolymerizable amine-containing monomers, the copolymer having amine groups that may be represented by the general formula:



where each R is independently H or a C₁ to C₁₀ hydrocarbon and R' is a bond or a C₁ to C₁₀ hydrocarbon.

45. (Original) The composite of claim 44, wherein R is H and R' is a bond.

46. (Original) The composite of claim 44, wherein the C₂-C₁₀ α -olefins are ethylene and/or propylene.

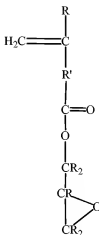
47. (Previously Presented) A composite comprising:

an ionomer layer;

a tie-layer comprising a (co) extrudable tie resin (CTR); and

a substrate, wherein the CTR comprises an epoxy-containing polymer comprising a copolymer of C₂-C₁₀ α -olefins and epoxy-containing monomers.

48. (Original) The composite of claim 47, wherein the epoxy-containing monomer is represented by the general formula:

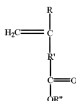


where each R is independently H or a C₁ to C₁₀ hydrocarbon and R' is independently a bond or a C₁ to C₁₀ hydrocarbon.

49. (Original) The composite of claim 47, wherein the C₂-C₁₀ α-olefins are ethylene and/or propylene.

50. (Original) The composite of claim 47, wherein the epoxy-containing monomers are selected from the group consisting of glycidyl acrylate and glycidyl methacrylate.

51. (Original) The composite of claim 47, wherein the copolymer further comprises an ester monomer represented by the general formula:

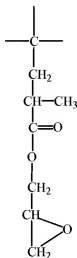


where each R is independently H or a C₁ to C₁₀ hydrocarbon; each R' is independently a bond or a C₁ to C₁₀ hydrocarbon; and R'' is a C₁ to C₁₀ hydrocarbon.

52. (Original) The composite of claim 51, wherein the ester monomer is selected from the group consisting of methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate, and butyl (meth)acrylate.

53. (Previously Presented) A composite comprising:

- an ionomer layer;
- a tie-layer comprising a (co) extrudable tie resin (CTR); and
- a substrate, wherein the CTR comprises a grafted, epoxy-containing polymer represented by the general formula:



54. (Previously Presented) A composite comprising:

- an ionomer layer;
- a tie-layer comprising a (co) extrudable tie resin (CTR); and
- a substrate, wherein the CTR comprises a grafted, epoxy-containing polymer produced by grafting epoxy-containing monomers onto C₂-C₁₀ α-olefins polymers.

55. (Original) The composite of claim 54, where the C₂-C₁₀ α-olefins polymers are ethylene and/or propylene polymers.

56. (Previously presented) A composite comprising:

- an ionomer layer;
- a tie-layer comprising a (co) extrudable tie resin (CTR); and
- a substrate, wherein the CTR comprises an epoxy-containing polymer, the epoxy-containing polymer comprising glycidyl methacrylate grafted onto polyethylene or a copolymer of ethylene with one or more ester monomers selected from the group

consisting of methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate and butyl (meth)acrylate.

Claims 57-81. (Cancelled)

82. (Previously Presented) The composite of claim 44, wherein the ionomer layer comprises a first ionomer layer and a second ionomer layer.

83. (Original) The composite of claim 82, wherein the first ionomer layer or the second ionomer layer is pigmented, natural, or clear.

84. (Previously Presented) The composite of claim 44, wherein the ionomer layer comprises a zinc-neutralized ionomer or a sodium-neutralized ionomer.

85. (Previously Presented) The composite of claim 47, further comprising a backing layer.

86. (Previously Presented) The composite of claim 44, wherein the thickness of the composite article is from 200 μm to 6 mm.

87. (Previously Presented) The composite of claim 44, wherein the substrate material is selected from EPDM (ethylene-propylene-diene monomer), EP (ethylene-propylene rubber), acrylonitrile-butadiene-styrene terpolymer, acetal polymer, acrylic polymers, cellulose, fluoroplastics, nylon and other polyamides, polyamide-imide, polycarbonate, polyester, polyetheretherketone, polyetherimide, polyethylene, polyimide, polyphenylene, polyphenylene sulfide, plastomer, polypropylene, polypropylene impact copolymers, polystyrene, polysulfone, polyurethane, polyvinyl chloride, and foams of such materials, as well as blends of these materials.

88. (Previously Presented) The composite of claim 44, wherein the substrate is a polyolefin selected from polyethylene polymers, polyethylene copolymers, polypropylene polymers, polypropylene copolymers, polypropylene impact copolymer

and a blend of polypropylene impact copolymer and ethylene plastomer, and mixtures thereof.

Claims 89-170. (Cancelled)

171. (Previously Presented) The composite article of claim 172, wherein the laminate is thermoformed.

172. (Previously Presented) A composite article formed by the method comprising:

- (a) providing a laminate comprising an ionomer layer and a tie-layer comprising a (co)extrudable tie resin (CTR);
- (b) forming a shape from the laminate, resulting in a shaped laminate; and
- (c) securing a substrate material to the shaped laminate, wherein the CTR comprises a copolymer of one or more C_2 - C_{10} α -olefins and one or more ethylenically copolymerizable amine-containing monomers, the copolymer having amine groups that may be represented by the general formula:



where each R is independently H or a C_1 to C_{10} hydrocarbon and R' is a bond or a C_1 to C_{10} hydrocarbon.

173. (Original) The composite article of claim 172, wherein R is H and R' is a bond.

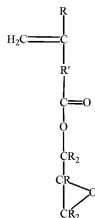
174. (Original) The composite article of claim 172, wherein the C_2 - C_{10} α -olefins are ethylene and/or propylene.

175. (Previously presented) A composite article formed by the method comprising:

- (a) providing a laminate comprising an ionomer layer and a tie-layer comprising a (co)extrudable tie resin (CTR);

- (b) forming a shape from the laminate, resulting in a shaped laminate; and
- (c) securing a substrate material to the shaped laminate, wherein the CTR comprises an epoxy-containing polymer comprising a copolymer of C₂-C₁₀ α-olefins and epoxy-containing monomers.

176. (Original) The composite article of claim 175, wherein the epoxy-containing monomer is represented by the general formula:

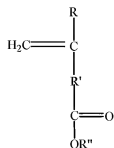


where each R is independently H or a C₁ to C₁₀ hydrocarbon and R' is independently a bond or a C₁ to C₁₀ hydrocarbon.

177. (Original) The composite article of claim 175, wherein the C₂-C₁₀ α-olefins are ethylene and/or propylene.

178. (Original) The composite article of claim 175, wherein the epoxy-containing monomers are selected from the group consisting of glycidyl acrylate and glycidyl methacrylate.

179. (Original) The composite article of claim 175, wherein the copolymer further comprises an ester monomer represented by the general formula:

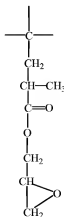


where each R is independently H or a C₁ to C₁₀ hydrocarbon; each R' is independently a bond or a C₁ to C₁₀ hydrocarbon; and R'' is a C₁ to C₁₀ hydrocarbon.

180. (Original) The composite article of claim 179, wherein the ester monomer is selected from the group consisting of methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate, and butyl (meth)acrylate.

181. (Previously Presented) A composite article formed by the method comprising:

- (a) providing a laminate comprising an ionomer layer and a tie-layer comprising a (co)extrudable tie resin (CTR);
- (b) forming a shape from the laminate, resulting in a shaped laminate; and
- (c) securing a substrate material to the shaped laminate, wherein the CTR comprises a grafted, epoxy-containing polymer represented by the general formula:



182. (Previously presented) A composite article formed by the method comprising:

- (a) providing a laminate comprising an ionomer layer and a tie-layer comprising a (co)extrudable tie resin (CTR);
- (b) forming a shape from the laminate, resulting in a shaped laminate; and
- (c) securing a substrate material to the shaped laminate, wherein the CTR comprises a grafted, epoxy-containing polymer produced by grafting epoxy-containing monomers onto C₂-C₁₀ α -olefins polymers.

183. (Original) The composite article of claim 182, where the C₂-C₁₀ α -olefins polymers are ethylene and/or propylene polymers.

184. (Previously presented) A composite article formed by the method comprising:

- (a) providing a laminate comprising an ionomer layer and a tie-layer comprising a (co)extrudable tie resin (CTR);
- (b) forming a shape from the laminate, resulting in a shaped laminate; and
- (c) securing a substrate material to the shaped laminate, wherein the CTR comprises an epoxy-containing polymer, the epoxy-containing polymer comprising glycidyl methacrylate grafted onto polyethylene or a copolymer of ethylene with one or more ester monomers selected from the group consisting of methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate and butyl (meth)acrylate.

Claims 185-208. (Cancelled)